Listing of Claims:

Claim 1 A process for regenerating a Type II strong base anion exchange resin comprising:

passing an alkanolamine solution, whose effectiveness at removing H_2S and CO_2 from gas streams has been decreased by the accumulation of heat stable salts, through a bed of Type II strong base anion exchange resin until the active anion exchange sites of said Type II strong base anion exchange resin are loaded with heat stable salt anions; and

contacting said loaded Type II resin with an amount of an alkali metal hydroxide and for a time sufficient to obtain recovery of over 50% of the virgin capacity of the loaded Type II resin.

Claim 2 The process according to claim 1 wherein said heat stable salt anion is SCN^-.

Claim 3 The process according to claim 1 wherein said alkali metal hydroxide is sodium hydroxide.

Claim 4 The process according to claim 3 wherein the amount of sodium hydroxide is from about 1 to about 40 pounds of NaOH equivalent per cubic foot of resin.

Claim 5 A process for regenerating a Type II strong base anion exchange resin comprising:

passing an alkanolamine solution, whose effectiveness at removing H_2S and CO_2 from gas streams has been decreased by the accumulation of heat stable salts, through a bed of Type II strong base anion exchange resin until the active anion exchange sites of said Type II strong base anion exchange resin are loaded with heat stable salt anions;

contacting said loaded Type II resin with an amount of an alkali metal hydroxide and for a time sufficient to obtain recovery of over 50% of the virgin capacity of the loaded Type II resin; and

repeating the steps of loading said Type II resin with said anions and regenerating repeatedly without substantial further reduction in active anion exchange sites.

Claim 6 The process according to claim 5 wherein said heat stable salt anion is SCN^-.

Claim 7 The process according to claim 5 wherein said alkali metal hydroxide is sodium hydroxide.

Claim 8 A process consisting of:

loading a Type II strong base anion exchange resin with SCN^-;

washing said Type II anion resin with water;

regenerating said Type II anion exchange resin in a single step with a solution of sodium hydroxide having a concentration of from about 1% to about 15% by weight of sodium hydroxide at a temperature of from about 70°F. to about 120°F. in an amount of NaOH from about 5 to about 35 pounds per cubic foot for from about 5 to about 120 minutes to remove heat stable anions from said resin to obtain recovery of over 50% of the virgin capacity of the loaded Type II resin; and

washing said Type II anion exchange resin with water.

Claim 9 (amended) A cyclic process for purifying an aqueous alkanolamine solution containing alkali metal salts of anions which form heat stable salts with alkanolamines, heat stable salts of such anions with alkanolamines, or both, comprising:

(a) contacting the aqueous alkanolamine solution with a Type II strong base anion exchange resin to transfer at least some heat stable salt anions from the solution to the resin;

(b) regenerating the resin by contacting the resin with an alkali metal hydroxide so that the alkali metal hydroxide removes from the resin substantially [~~all~~]-the same quantity of heat stable salt anions transferred to the resin in step (a); and

(c) repeating steps (a) and (b).

Claim 10 The process according to claim 9 wherein said alkali metal hydroxide is sodium hydroxide.

Claim 11 The process according to claim 9 wherein said aqueous alkanolamine solution is approximately 40% by weight alkanolamine.

Claim 12 (amended) A process for purifying an aqueous alkanolamine solution containing alkali metal salts of anions which form heat stable salts with alkanolamines, heat stable salts of such anions with alkanolamines, or both obtained from contacting the aqueous alkanolamine solution with a hydrocarbon gas stream containing acid gasses, comprising:

(a) contacting the aqueous alkanolamine solution with a Type II strong base anion exchange resin to transfer at least some heat stable salt anions from the solution to the resin;

(b) recirculating the aqueous alkanolamine solution recovered from step (a) to contact the hydrocarbon gas stream containing acid gasses;

(c) regenerating the resin by contacting the resin with an alkali metal hydroxide so that the alkali metal hydroxide removes from the resin substantially [~~all~~] the same quantity of heat stable salt anions transferred to the resin in step (a); and

(d) repeating steps (a) - (c).

Claim 13 The method of claim 9, wherein the heat stable salts comprise thiocyanate.

Claim 14 The method of claim 12, wherein the heat stable salts comprise thiocyanate.

Status of Claims

1. Pending
2. Pending
3. Pending
4. Pending
5. Pending
6. Pending
7. Pending
8. Pending
9. Pending
10. Pending
11. Pending
12. Pending
13. Pending
14. Pending

REMARKS

The Amendments

Claims 9 (from which claims 10 and 11 depend) and 12 have been amended to better describe the invention as a method including the step of removing from the resin substantially the same quantity of anions during regeneration that was transferred during the previous deposition cycle. The amendments are supported throughout the specification, and particularly in Examples 1 and 4. Applicants respectfully submit that the amendments add no new matter to the application, and earnestly solicit entry thereof.